

Harper Estuary Restoration Project

The Harper Estuary is a small embayment located in southern Kitsap County with a rich local history tied to the native peoples and modern development in the area. Pocket estuaries and salt marsh, like Harper Estuary, are important to the Puget Sound nearshore ecosystem and are a highly productive habitats for support of fish and wildlife. Shallow protected waters fringed by salt marsh plants provide an abundant food source for fish and wildlife, including juvenile salmonid and waterfowl, and a refuge from predation. These habitats are important to the health of Puget Sound and its natural resources. The natural values of the estuary, along with Harper Park and Harper Pier, are also a focal point for local community recreation and aesthetics.

Harper Estuary has been impacted by fill associated with former development activities. A brick mining and manufacturing facility was built in the southwest portion of the estuary in the early 1900s, which was then a lobe of the estuary (approximately the location of the Harper Park ballfield today). When the factory was abandoned in the 1940's, the buildings were demolished, with much of the material pushed into the estuary, accompanying "clinker" bricks and spillage from barge loading. Bricks associated with the history of Harper Estuary remain visible today.

The estuary's natural functions have also been impacted by road fill, both current and historic, along with other fill material for the boat landing and development. The estuary is bisected by SE Olympiad Drive Road, with tidal influence also restricted by two undersized culverts (Olympiad Drive and Southworth Drive). Prior to Olympiad Drive, fill and piling associated with



a drawbridge road approach and shoreline road also filled portions of Harper Estuary.



Restoration Interest:

Restoration of the natural values of Harper Estuary has been a local and regional priority for over a decade. The Harper estuary restoration project was selected by the Washington Department of Ecology (DOE) in 2013 for funding through the Natural Resource Damage funds associated with the Cleanup Settlement Account for the ASARCO smelter site in Tacoma. The restoration project was designed to build on former habitat restoration conceptual planning over the past decade (e.g. PSNERP 2011) and incorporate stakeholder and community outreach input for the final project design. The Washington Department of Fish and Wildlife (WDFW) has partnered with Kitsap County since 2013 to:

- Seek input from the local community and stakeholders
- Develop and analyze restoration options with the local community and stakeholders
- Develop a habitat restoration design and complete permitting
- Continue community outreach throughout this process
- Implement the final design for the habitat restoration project



Current Status: Harper Estuary Restoration Project, September 2016: The project will restore unimpeded tidal influence and habitat processes to Harper Estuary, currently impacted by undersized culverts and historic fill. The project will be implemented in two phases, with the first phase starting this year in September 2016. Total project cost is estimated at \$7 million dollars.

Phase 1 includes two components:

- Replacing the existing culvert under Southworth Drive at Harper Creek.

The culvert is undersized and is documented as a fish passage barrier. The culvert will be replaced in this phase with a 16' wide box culvert designed to allow fish access and more tidal influence to Harper Creek upstream of the road crossing. In addition to environmental benefits, larger culverts provide better conveyance of floodwaters, sediment and wood during winter storms. During construction, traffic will be

temporarily detoured at Southworth Drive as the culvert is replaced. Construction of the culvert replacement is expected to take about 4-8 weeks, with the detour in place from September 21 through November 16, 2016.

- Removal of industrial fill including bricks, gravel, and extra fill placement amounting to approximately 15,000 cubic yards of material.

Industrial fill from the former brick operation, along with additional fill material will be removed beginning in October 2016. Some of the fill is quite deep, such that elevations will be restored following excavation with clean fill to re-establish estuarine habitat. In a few locations, the soil associated with this material was found to have slightly elevated levels of arsenic and cPAHs during testing (see [fact sheet](#) description). This fill will be removed as part of the project and taken to approved disposal locations. The informal boat landing, relict road fill, and bulkhead will be removed during the first phase of the project. Plantings of upland areas with native salt tolerant plant species will be done to encourage quick recovery after construction disturbance.

As part of this project, imported fill at the boat landing will be removed and the estuarine habitat restored. Pedestrian access and hand launch options will be available at the restored site after Phase 1. Trailer-able boat access will not be available after project completion. As part of the grading in Phase 1, the fill over the existing culvert will remain and be sloped to the water at a gentle slope (5H:1V). A stairway at the intersection may be added, but land ownership survey issues may prohibit construction of this stairway. As part of Phase 2 when the culvert is removed, a pathway will be constructed as a public access along the bridge abutment.

During construction, the parking lot of Harper Park will be closed for staging construction equipment and materials. A pedestrian corridor to the trail system will be provided. In addition, the boat landing and public access to the site will be closed as construction begins for safety reasons.



Phase 1a: Replacement of undersized culvert at Harper Creek on Southworth Drive

Phase 1b: Removal of industrial fill, non-native fill and implement habitat restoration actions

Objective: Complete fill removal and associated estuarine restoration actions by June 30, 2017

Current Status: September 2016

Southworth Drive culvert replacement Phase 1a: Construction contractor has been selected with expected start in early September. Southworth Drive will be closed during construction for culvert replacement and road repair with start date of September 21, 2016 for up to eight weeks. A detour will be posted with signage during this time period.

Estuary Restoration Project Phase 1b: WDFW, working with Kitsap County, developed designs for the estuary restoration work, to include removal of industrial fill removal (bricks, manmade debris, nonnative materials) and re-establishment of estuarine habitat. Initial plans included relocation of the existing informal boat landing but this element of the design was logistically impossible at this location at this time. Public access will be informally available within the project area for access by pedestrians and hand launch of watercraft. A formal stairway is designed and included in construction documents but land ownership issues may prevent construction of this element. This phase of the construction is currently out to bid, with expected construction in fall/winter 2016.

Upcoming Work:

Phase 1a: Replacement of undersized culvert at Harper Creek on Southworth Drive

Construction contractor selected and documentation complete	<i>Aug 2016</i>
Begin road detour for culvert replacement	<i>Sept 21 - Nov 16, 2016</i>
Culvert delivery at site	<i>Sept 2016</i>
Culvert installation	<i>Sept - October 2016</i>
Road repaired and re-paved. Detour removed. Project completion.	<i>November 2016</i>

Phase 1b: Removal of industrial fill (bricks, manmade debris, non-native fill) and implement habitat restoration actions

Advertise and award for construction contract for Phase 1b work	<i>September 2016</i>
Mobilization for construction. Boat landing closure. Olympiad Drive will remain open.	<i>late Sept or early Oct 2016</i>
Project construction. In-water work window ends Feb 2017	<i>Oct 2016 - Feb 2017</i>
Project completion	<i>Feb - June 2017</i>

Phase 2 of the project has not yet secured funding, but is planned to be completed in the future by Kitsap County. This phase of the project will include removing the undersized culvert on SE Olympiad Drive and replacing it with a 120 foot bridge that will span over the estuary. A bridge will open up the estuary and restore it to a more natural amount of tidal influence resulting in nutrient rich brackish water. The bridge will also allow fish that have been obstructed from entering the estuary and Harper Creek to utilize the large gain in habitat for rearing and feeding. Additional information is available on the Kitsap County Public Works [website](#).

Kitsap County is also working closely with community members develop community project(s) to honor the local history of the estuary. This project will belong to the community, and will be implemented with the help of Kitsap County.



Final design including Phase 1 and Phase 2 activities

Phase 2: Olympiad Drive culvert replacement with 120' bridge

Objective: Produce a shovel-ready project by June 30, 2017, with construction work in 2018.

Current Status: September 2016

Current status: Kitsap County and WDFW collaborated to develop alternatives for Olympiad Drive bridge span and location, determining that 120' span over the existing culvert location would best serve the site. Project plans for the bridge are at 60% design and permitting is underway.

In response to community input, Kitsap County added a pedestrian/hand-launch path to the bridge design work. This element is intended to be ADA accessible and provide a gently sloped path to the estuary under the bridge on the southeast side.

Kitsap County is seeking additional funding to implement this phase of the project.

Upcoming Work: September 2016 – June 2017

Preparation of 90% design documents and permit submittals	<i>July - October 2016</i>
Continue preparation of studies for permitting (cultural resources, wetlands)	<i>August - December 2016</i>
Continue work on land ownership determination	<i>August 2016 - June 2017</i>
Final design of project in preparation for construction, if funding available	<i>October 2016 - February 2017</i>
Submittal and review of funding requests (grants for ESRP, PSAR) for Phase 2 work; Funding package work	<i>Applications submitted in summer 2016 with funding as determined by the Legislature (June 2017)</i>
Community project using recovered bricks	<i>September 2016 - June 2017</i>
If funding available, selection of contractor and ready for construction in July 2017	<i>April - June 2017</i>
If funding obtained, replace undersized culvert at Olympiad Drive with bridge	<i>July 2017 – June 2018</i>



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